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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,699	05/27/2005	Masato Doi	112857-470	8615
29175 7590 06/06/2008 BELL, BOYD & LLOYD, LLP P. O. BOX 1135 CHICAGO, IL 60690				
EXAMINER				
MCLELLAND, KIMBERLY KEIL				
ART UNIT		PAPER NUMBER		
1791				
MAIL DATE		DELIVERY MODE		
06/06/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/511,699

Applicant(s)

DOI ET AL.

Examiner

KIMBERLY K. MCCLELLAND

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36 and 38-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36 and 38-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant is reminded they need to explicitly point out where support for all the newly claimed features comes from as required by MPEP 714.02 and 2163.06. See 37 CFR 1.111.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 36, 38-39, 41-43, 45, and 47-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Publication No. WO02/084631 as evidenced by corresponding U.S. Patent No. 6,872,635 to Hayashi et al. in view of U.S. Patent No. 5,426,342 to Nakamura et al.

4. With respect to claim 36, Hayashi et al. discloses embedding one-side devices (8) into an adhesive layer (7) provided on a second substrate (6); embedding other-side devices (3) arranged on a first substrate into an uncured adhesive layer (7) provided on a second substrate (6) where one-side devices (8) are embedded in the adhesive layer; and the one-side devices and the other-side devices have different characteristics (See paragraph 0126); and stripping the other-side devices from the first substrate thereby holding the other-side devices in an embedded states in the uncured adhesive layer

(See Figure 2A-2F) wherein the other-side devices and one-side devices are light emitting diodes (See paragraph 0170). Hayashi et al. discloses stripping the first substrate prior to cooling the adhesive to room temperature, when the adhesive is cured completely (See paragraph 0226), which meets applicant's claimed language of stripping the other-side devices from the first substrate thereby holding the other-side devices in an embedded state in the uncured adhesive layer. However, Hayashi et al. does not disclose using pressure sensitive adhesive.

5. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

6. As to claim 38, Hayashi et al. discloses the one-side (8) devices and the other-side devices (3a) are held in the embedded state in different areas on the substrate (See Figure 2D).

7. As to claim 39, Hayashi et al. discloses embedding devices (42) arranged on a first substrate (41) into a pressure sensitive adhesive layer (45) provided on a second substrate (43), the pressure sensitive adhesive being in an uncured state (See Figure 10); wherein the devices are light emitting diodes (See paragraph 0170); stripping the devices from the first substrate thereby holding the devices in an embedded and

uncured state in the pressure sensitive adhesive layer (See Figure 11), and hardening the uncured adhesive layer to cure the pressure sensitive adhesive (See paragraph 0226); forming first electric wirings (46) on the adhesive layer, adhering a third substrate (47) onto a side on which the first electric wirings are formed of the adhesive layer, and stripping the second substrate and the adhesive layer from each other (See Figure 12); and providing adhesive layer with openings (65, See Figure 16) reaching the devices, filling the openings with a conductive material (49), and forming second electric wirings (63, 64) on the adhesive layer. Hayashi et al. discloses stripping the first substrate prior to cooling the adhesive to room temperature, when the adhesive is cured completely (See paragraph 0226), which meets applicant's claimed language of stripping the other-side devices from the first substrate thereby holding the other-side devices in an embedded states in the uncured adhesive layer. However, Hayashi et al. does not disclose using pressure sensitive adhesive.

8. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

9. As to claim 41, Hayashi et al. discloses embedding one-side devices (42) arranged on a first substrate (41) into a pressure sensitive adhesive layer (45) provided

on a second substrate(43) the pressure sensitive adhesive being in an uncured state (See Figure 10), and stripping the one-side devices from the first substrate thereby holding the one-side devices in an embedded and uncured state in the pressure sensitive adhesive layer (See Figure 11); further embedding other-side devices arranged on the first substrate into the uncured adhesive layer (See paragraph 0170), and stripping the other-side devices from the first substrate thereby holding the other-side devices (62) in an embedded and uncured state in the pressure sensitive adhesive layer (See paragraph 0226), where the one-side devices are embedded in the adhesive layer wherein the one-side devices and the other side devices are light emitting diodes (See paragraph 0170); hardening the pressure sensitive adhesive layer to cure the adhesive layer where the one-side devices and the other-side devices are held in the embedded and cured state in the pressure sensitive adhesive layer (See paragraph 0157); forming first electric wirings on the adhesive layer (46), adhering a third substrate (47) onto the side on which the first electric wirings are formed of the adhesive layer, and stripping the second substrate and the adhesive layer from each other (See Figure 12); and providing the adhesive layer with openings reaching the one-side devices or the other-side devices, filling the openings with a conductive material (49), and forming second electric wirings on the adhesive layer (63, 64, See Figure 16). Hayashi et al. discloses stripping the first substrate prior to cooling the adhesive to room temperature, when the adhesive is cured completely (See paragraph 0226), which meets applicant's claimed language of stripping the other-side devices from the first substrate thereby holding the other-side devices in an embedded states in the uncured

adhesive layer. However, Hayashi et al. does not disclose using pressure sensitive adhesive.

10. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53). Therefore, it would have been obvious to combine Nakamura et al. with Hayashi et al. to obtain the invention as disclosed in claim 41.

11. As to claim 42, Hayashi et al. discloses the one-side devices and the other-side devices have different characteristics (See paragraph 0170).

12. As to claim 43, Hayashi et al. discloses one-side devices and the other-side devices are held in the embedded state in different areas on the second substrate (See Figure 16).

13. As to claim 45, Hayashi et al. discloses one of the one-side devices and the other-side devices are any one of display devices and driving circuit devices (see paragraph 0170).

14. As to claim 47, Hayashi et al. discloses bringing the other side devices into contact with a temporary adhesion layer provided on the first substrate for temporarily adhering the other side devices to the temporary adhesion layer thereby arranging the

devices on the first substrate, before embedding the other-side devices into the uncured adhesive layer provided on the second substrate(See Figure 2A). However, Hayashi et al. does not disclose using pressure sensitive adhesive.

15. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

16. As to claim 48, Hayashi et al. discloses a tack of the pressure sensitive adhesive layer provided on the second substrate is greater than a tack of the temporary adhesion layer provided on the first substrate, as shown by the transfer of devices from the temporary adhesion layer to the adhesive layer (See Figures 10-11). However, Hayashi et al. does not disclose using pressure sensitive adhesive.

17. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

18. As to claim 49, Hayashi et al. discloses tack of at least one of the uncured adhesive layer and the temporary adhesion layer is changed so that the tack of the uncured adhesive layer will be greater than the tack of the temporary adhesion layer (i.e. thermally cure; See paragraph 0187). However, Hayashi et al. does not disclose using pressure sensitive adhesive.

19. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

20. As to claim 50, Hayashi et al. discloses curing the uncured adhesive layer using a heating treatment (i.e. thermosetting; See paragraph 0187). However, Hayashi et al. does not disclose using pressure sensitive adhesive.

21. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).

22. As to claim 51, Hayashi et al. discloses the uncured adhesive layer is hardened after stripping the devices from the first substrate (i.e. "certainly fixed"; See paragraph 0226). However, Hayashi et al. does not disclose using pressure sensitive adhesive.
23. Nakamura et al. discloses a method of manufacturing a fluorescent display device, including using a heat sensitive and pressure sensitive adhesive layer (column 4, lines 45-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the pressure sensitive adhesive, taught by Nakamura et al., with the element transfer method disclosed by Hayashi et al. The motivation would have been to use an adhesive with good volatility and satisfactory adhesion (Nakamura et al., column 4, lines 45-53).
24. Claims 40 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Publication No. WO02/084631 as evidenced by corresponding U.S. Patent No. 6,872,635 to Hayashi et al. in view of U.S. Patent No. 5,426,342 to Nakamura et al. as applied to claims 36, 38-39, 41-43, 45, and 47-51 above, and further in view of U.S. Patent Application Publication No. 2003/0227253 to Seo et al.
25. With respect to claim 40, Hayashi et al. discloses an element transfer method, including using light emitting devices as elements (See paragraph 0170). Nakamura et al. discloses the use of a pressure and heat sensitive adhesive to adhere the elements to a substrate. However, Hayashi et al. and Nakamura et al. do not disclose driving methods.

26. Seo et al. discloses display is carried out through simple matrix driving by impressing a voltage on the devices through the first electric wirings and the second electric wirings (See paragraph 0016). It would have been obvious to one of ordinary skill in the art to combine the driving method of Seo et al. with the element transfer method, disclosed by Hayashi et al. and the pressure sensitive adhesive taught by Nakamura et al. The motivation would have been to cause electroluminescence (Seo et al., See paragraph 0051).

27. As to claim 44, Hayashi et al. discloses an element transfer method, including using light emitting devices as elements (See paragraph 0170). Nakamura et al. discloses the use of a pressure and heat sensitive adhesive to adhere the elements to a substrate. However, Hayashi et al. and Nakamura et al. do not disclose driving methods.

28. Seo et al. discloses display is carried out through simple matrix driving by impressing a voltage on the devices through the first electric wirings and the second electric wirings (See paragraph 0016). It would have been obvious to one of ordinary skill in the art to combine the driving method of Seo et al. with the element transfer method, disclosed by Hayashi et al. and the pressure sensitive adhesive taught by Nakamura et al. The motivation would have been to cause electroluminescence (Seo et al., See paragraph 0051).

29. As to claim 46, Hayashi et al. discloses an element transfer method, including using light emitting devices as elements (See paragraph 0170). Nakamura et al. discloses the use of a pressure and heat sensitive adhesive to adhere the elements to a

substrate. However, Hayashi et al. and Nakamura et al. do not disclose driving methods.

30. Seo et al. discloses display is carried out through active matrix driving by impressing a voltage on the display devices by the driving circuit devices. (See paragraph 0016). It would have been obvious to one of ordinary skill in the art to combine the driving method of Seo et al. with the element transfer method, disclosed by Hayashi et al. and the pressure sensitive adhesive taught by Nakamura et al. The motivation would have been to allow for drive at a low voltage (Seo et al., See paragraph 0052).

Response to Arguments

31. The 102/103 rejections of the product-by-process claims has been withdrawn, due to the current amendment.

32. Applicant's arguments filed 3/18/08 have been fully considered but they are not persuasive.

33. Applicant's arguments are primarily drawn to the disclosure and language of Hayashi. Applicant asserts Hayashi exclusively discloses curing the adhesive layer prior to stripping devices from a first substrate. Examiner disagrees. Applicant has relied on certain passages as specifically disclosing curing the adhesive layer prior to transfer. However, applicant has not addressed paragraph 0226 of Hayashi, cited by examiner for disclosing transferring devices prior to complete curing of the adhesive. While Hayashi also discloses curing the adhesive prior to curing in certain

embodiments, these embodiments are not limiting to the entire disclosure of Hayashi. Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). See MPEP 2125 [R-5]. For clarification purposes, the following disclosure of Hayashi is relied upon by the examiner as showing stripping the first substrate prior to cooling the adhesive to room temperature, when the adhesive is completely cured:

"When the thermoplastic adhesive layer 82 is softened, the heating is stopped, to cool and cure the thermoplastic adhesive layer 82, so that the devices 3 are transferred to the transfer substrate 83 via the thermoplastic adhesive layer 82. The transfer substrate 83 is then peeled from the base substrate 1, and the thermoplastic adhesive layer 82 is cooled to room temperature, whereby the devices 3 are certainly fixed to the transfer substrate 83."

The disclosure of Hayashi of cooling the adhesive layer to room temperature after stripping the substrate in order to be "certainly fixed" (i.e. hardened) the adhesive layer meets applicant's claimed limitation of stripping the other-side devices from the substrate thereby holding the other-side devices in an embedded state in the uncured adhesive layer (See Hayashi, paragraph 0226). The language used by Hayashi of "the heating is stopped to cool and cure the thermoplastic adhesive" is the purpose of stopping the heating step, and is not an actual description of the curing step. Hayashi specifically discloses cooling the transfer substrate to room temperature after the transferring operation.

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. International Patent Application Publication No. PCT/JP01/06213 and corresponding U.S. Patent No. 6,613,610 to Iwafuchi et al. disclose a similar device transfer method, including a specific recitation of curing the adhesive surface of the transfer substrate after devices have been transferred (column 27, lines 40-45; column 31, lines 54-60).
35. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY K. MCCLELLAND whose telephone number

is (571)272-2372. The examiner can normally be reached on 8:00 a.m.-5 p.m. Mon-Thr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571)272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. K. M./
Examiner, Art Unit 1791

KKM

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791